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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,908	02/28/2002	Maxim A. Bolshtyansky	1-14	2903

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Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

NGUYEN, TUAN N

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,908

Applicant(s)

BOLSHTYANSKY ET AL.

Examiner

Tuan N Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-18 are rejected under 35 U.S.C 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “an *optical fiber laser* comprising: a laser cavity, a pump source; and a combiner having a first side, a second side and an input port, wherein an output of the pump source is operatively coupled to the input port of the combiner, and *the combiner is coupled at its first and second sides within the laser cavity.*” The claim claims an optical fiber laser, but there is no fiber; it is unclear what is coupled at the combiner first and second sides, or the function of the combiner. The claim does not contain the main point of the invention, which is the structural and relationship of the multimode, combiner, and lasing cavity, which render the claims vague and indefinite. It is not clear if the pump source also part of the laser cavity or outside. It is not clear where does the pump combiner position within the laser cavity. It is not clear what define a laser cavity – e.g. cavity within laser fiber, a sections where laser oscillating between mirror elements. Claims 2-11 are rejected base on the same reason.

Claim 12 recites “a method for *combining laser light with pump light in an optical fiber laser device*, the method comprising the steps of: *positioning a pump combiner within a laser*

cavity; and coupling a pump source for exciting lasing medium to an input of the combiner.” The claim is claiming “a method for *combining laser light with pump light* in an optical fiber laser device,...”there is no optical fiber, and it is not sure what the laser light is the pump light is combining with. It is not clear where does the pump combiner position within the laser cavity. It is not clear what define a laser cavity – e.g. cavity within laser fiber, a sections where laser oscillating between mirror elements. *The claim is vague and indefinite, as required by 112th - 2nd and 6th paragraph.* There is insufficient *means plus function* structural relationship between the elements, which render the claims vague and indefinite. Claims 13-18 are rejected base on the same reason.

Claim Rejections - 35 USC § 102

3. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, and 10-17 are rejected under 35 U.S.C. 102(b) as being unpatentable over Ball (US 5594747).

With respect to claims 1 and 12 Ball shows in figures 1, 4 and discloses in the ABSTRACT and column 2, an optical fiber laser cavity (18), a pump source (20), a combiner having a first side, a second side, and an input port (Fig 4: 200, 202, 206, 210; Fig 1: 60, 18, 58, 62), wherein output of pump source is coupled to input port of the combiner and the combiner is couple at its first and second sides within the laser cavity. Since claim 12 recites the same or identical elements/limitations it is inherent to use patents ('747) to recite the method for combining laser light with pump light in an optical fiber laser device, product by process.

With respect to claims 2-5, and 13-15, Balls shows in figure 1 and discloses a cladding pump fiber having rare earth core, where fiber has grating that consist of 1st and 2nd reflector (Col 1: 30-55 and Col 3: 40-60).

With respect to claims 6-8, and 16-17, Balls discloses the grating has high index coating and low index coating, where the reflective device is an interference filter, and lasing medium is a single mode fiber (Col 4: 35-61).

With respect to claims 10, and 11 Balls shows in (Figure 1: 18, 58) an input port that is associated with one of the first and second side of the combiner, and the fiber laser is configured for directional pumping.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball (US 5594747), in view of Zenteno (US 6370180). Ball ('747) discloses the above except the pump source is a multimode source. Zenteno ('180) discloses the using of multimode pump source (Col 2: 32-40) in a laser optical waveguide pump having laser cavity with fiber grating doped with rare earth core and perform bi-directional pumping. It would have been obvious to one of ordinary skill in the art to provide Ball ('747) with the multimode pump source as taught or suggested by Malin et al. ('001), for the benefit of generation of Raman gain for a signal in the single mode core and increase its capacity to accommodate multimode pump laser signal, when Ball ('747) can readily operate in single longitudinal mode or multiple longitudinal mode signal (Col 8: 25-32)

Citation of Pertinent Reference

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is cited primarily to show the product of the instant invention.

Waarts et al. (US006212310B1) / (US005530709A), Holcomb et al. (US006456637B1), Chang et al. (US006163554A), Ball et al. (US005564832A), Conradi (US006061369A), Craig et al. (US006167075A), DiGiovanni (US005966491A), Mazzaresse et al. (US006483973B1), Bergano et al. (US006342961B1), and Alphonse et al. (US006363088B1) discloses laser multiplexing system.

Communication Information

Art Unit: 2828

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (703) 605-0756. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8592 for regular communications and (703) 746-8592 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tuan N. Nguyen

January 3, 2003

Paul Ip

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